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Notes on Plants of the Chicago District

By E. J. HILL

In studying the flora of a restricted region, no matter how carefully it seems to have been explored, one is frequently surprised by finding new things. It almost seems as if such plants ought to be classed with those which are known to be introduced, like many migrants along the railways or escapes from gardens. But they are really old residents that had failed to be detected. No region can be regarded as thoroughly explored till every acre of its wild areas at least has been examined. Then some plants are so rare or local or grow under such peculiar conditions that a few square rods or even feet may comprise their range. This is said of the flowering plants and the vascular cryptogams. When we come to the lower orders of plants the space occupied by a given species may be still more restricted. I have in mind a single elm tree to a hollow knot of which I must go to get a little moss, *Anacamptodon splachnoides* Brid., though I do not suppose it is confined to that one knot of all the like hollows which may be found in the region traversed. But the problem is to find the other places, something I should value in its bearings on work pertaining to the geographical distribution of the mosses of the Chicago region. Yet eight years have passed without additions to that hollow space, fortunately so low down on the trunk as to be in easy reach of eye and hand. Bearing this in mind, together with the purpose of extending the range of some plants well known elsewhere, or more particularly indicating their presence here if within their general range as hitherto given, the following notes have been prepared. They are mostly plants detected in the Chicago area during the past two seasons, and such remarks are added as may serve to elucidate their character. The plants are also largely from the dune region at the south end of Lake Michigan, a tract with a remarkably varied flora, whose sand hills, hollows and swamps are an unfailing delight to botanists. They are arranged in groups the better to compare and indicate their range.

The most striking of these are such as have ascribed to them

an Atlantic coast range or occur eastward of the Alleghanies, extending in some cases along the coast to the southwest to Louisiana, Texas and Mexico. I have ceased to be surprised at this since first meeting with such plants in 1870 growing on the sandy terraces or the bordering wetish lands along the Kankakee river in Illinois. All of these have since been traced to the dune region of Lake Michigan, or have had their range extended to other parts. But some of them have not yet had intermediate stations recorded for them till the Atlantic slope is reached, like *Rynchospora cymosa*, *Eleocharis capitata* and *E. melanocarpa*, unless they occur inland farther to the south. To these may now be added *Panicum verrucosum* Muhl., *P. lanuginosum* Ell., *Scleria Torreyana* Walp., *Psilocarya nitens* Wood, *Xyris Caroliniana* Walt., with a range from Massachusetts or New Jersey south to Florida, or along the gulf to Louisiana and Texas, and, in the case of *S. Torreyana*, to Mexico. *Psilocarya scirpoides* Torr. occurs with *P. nitens* but has a more restricted range along the coast, "eastern Massachusetts and Rhode Island." Perhaps there should be added to these *Rynchospora macrostachya* Torr., which is made a variety of *R. corniculata* A. Gray and given the same range as the type in Britton and Brown's "Illustrated Flora," but in the older books is confined to the coast region. It is well marked, its long slender spikelets erect or but slightly spreading. It is remarkably abundant where it occurs, like grass in a meadow, and very striking with its prominent brown spikes. *Xyris Caroliniana* spreads over considerable areas making masses of yellow beds in the less grassy portions of desiccated or partially desiccated sloughs in the summer season. The two *Psilocaryae* are specially noteworthy, growing in company in the muddy borders of sloughs, usually in dense masses, so that a single handful will show specimens of both kinds, but so distinct that a little practice enables the eye to separate them without resort to a lens to examine their achenia, which is the final test. Though so close together it is hard to find a specimen that is intermediate in character or classed without difficulty with its appropriate type. I know few plants of any genus so intimately associated that maintain their characters so uniformly and so plainly show that they are specifically distinct. Though frequently intermingled in the same ground-bed they usually oc-

cupy in mass different areas whose borders overlap, *P. scirpoides* more abundant, taller and stouter. It is interesting to note also that the spikelets are often much changed in appearance by a rust, probably the same which Torrey mentions in the original description of *P. scirpoides* in his "Monograph of North American Cyperaceae."* "The flowers are frequently affected with a species of *Uredo*, insomuch that during one season Mr. Green [of New Bedford, Mass., who seems to have sent Torrey the first specimens of the plant] was unable to find a single specimen that was not diseased."

Fuirena squarrosa Michx. nearly ranks with this group, having one locality north of Detroit, Mich., accorded it, and occurring also in northern Ohio. West it appears again in Nebraska. Last summer it was found in a single locality in the dune region.

These plants generally grow in proximity in the same sloughs, being plants of wet ground, with the exception of *Panicum lanuginosum* which frequents the slopes of neighboring sand hills and comes down to the sloughs at their base. It occurs also in localities outside of the dunes proper. They have been obtained near Dune Park, Porter County, Ind., all but *Scleria Torreyana* in a section of the dune area I had not visited until 1897, and am not aware of its having been explored by others previously.

Some plants from the same section which have had an eastward or a southern range assigned them can be added to the list. *Elcocharis Robbinsii* Oakes, not given farther west than Clinton County in Central Michigan, the only known locality in the State (Beal and Wheeler's Michigan Flora, 1892); *Scleria reticularis* Michx. and *S. pauciflora* Muhl., south of this along our meridian. By finding the last the past season there are given to the dune region five of the six species of *Scleria* within the range of the Manual region, *S. triglomerata* and *S. verticillata* being known from here before and quite general in their occurrence. They can all be obtained in a limited area at Dune Park, together with the plants heretofore mentioned, and within a circle of scarcely more than a mile radius. To this group may be added *Panicum sphaerocarpon* Ell., a plant of dry sand hills; *Linum striatum* Walt., in open wet or wettish ground, both from Dune Park; *Cassia nictitans* L. from

* Ann. Lyc. N. Y. 3: 361. 1836.

the sand hills and ridges of Tolleston, Ind.; and *Aristida gracilis* Ell., from Pine near the lake shore. The latter grows in ground that can hardly be called dry, for it occurs in sand bordering sloughs dry at the time of flowering. Yet one can reach out and get *Utricularia cornuta* and *U. gibba* with one hand while taking the *Aristida* with the other, so that its spring or early summer condition must be quite moist or even wet. *Panicum flexile* and *P. pubescens* are grasses commonly growing with it showing the composite ecological character of the soil conditions often seen in the dune flora, baffling one sometimes to determine whether they are xerophytic or hydrophytic, since they are both at different times of the year. The wettish sands of the spring and early summer provide the seeds of these annual grasses with better means of germination than the drier ridges subject to the wind and where the vegetation is scantier, the ground more bare, so that they grow more abundantly and luxuriantly in ground that becomes dry and suits a xerophytic plant when near its maturity. The westward distribution of *Vitis Labrusca*, which was obtained in the dune region in 1897, was discussed at large in an article in the BULLETIN of the Torrey Botanical Club in October, 1897.

Among the drift hills near Mokena, south of Chicago, two *Carices* occur which have a southern range for this meridian, *C. Shortiana* Dewey, in wet meadows, and *C. triceps* Michx. in oak woods. The latter has a single station given it farther north in the central part of southern Michigan, and both range in Illinois from Peoria south. *Cyperus acuminatus* Torr. and Hook., a sedge with a southwestward extension, was found last year by the Des-plaines River at Lockport, Ill. It has been known hitherto in the state as a plant of the valley of the Illinois River and towards the Mississippi. The three are still plants of the Illinois valley for our region as they are beyond the divide which separates the lake region from streams flowing toward the Mississippi.

Some plants with a general northern range or adapted to colder conditions have been added to our flora. *Carex oligosperma* Michx. comes into the dune region from the north, being found in sphagnous swamps and in cranberry marshes at Miller, Ind. The little bitter cress, *Cardamine parviflora* L., was obtained in the oak woods with *Carex triceps* though I have occasionally met

with it before. Perhaps there should be added to this northern list *Spiranthes latifolia* Torr., two specimens of which were found by Mrs. Agnes Chase of Chicago, growing on the bogs of springy ground near *Carex Shortiana*. I am not aware of its occurrence elsewhere in this state except in Menard County, a station farther south. In a pond in the same neighborhood an abundance of *Callitriche heterophylla* Pursh was secured, a plant of a wider range, mostly southward, but new to our region. Another rare plant was found twice by Mrs. Chase in the season of 1897, *Ophioglossum vulgatum* L., first in the damp, sandy borders of a slough at Miller, and again in the boggy border of Wolf Lake at Roby, Ind. I have seen it once before during the time of my botanical work, nearly forty years ago in western New York, where I also knew the Adder-tongue Fern in boyhood as a curious plant of the wet meadows. To meet with it twice after so long a time was a rare treat. It had been seen in Illinois so rarely that when Patterson published his "Catalogue of Illinois Plants" in 1876, but a single specimen was reported, obtained by Dr. Schneck in Wabash County.

Some plants have been recently added to our flora which are readily confounded with others that are similar and thus are easily overlooked. *Cyperus Houghtonii* Torr. does not greatly differ from some forms of *C. Schweinitzii* Torr., but is generally a lower plant with a more compact inflorescence, and may also, when the two are neighbors, grow higher up on the sand hills; it is also earlier by nearly a month. It has been in my herbarium since 1881 on the same sheet with its congener, collected in the dune region, but had failed to be separated, perhaps not without cause. In 1878, while studying the flora of Michigan at Petoskey and vicinity, a *Cyperus* was found on the sand hills at Indian River which I identified as *C. Houghtonii* from the description given in Torrey's Cyperaceae, as it was not in the Manual. To be better satisfied some were sent, together with *C. Schweinitzii*, to a well known botanist for verification. They were both pronounced *C. filiculmis* Vahl. This plant has been a familiar one for some time as well as *C. Schweinitzii*. I rested somewhat uneasily under the weight of authority, but finally concluded that *filiculmis* and *Schweinitzii* were different and *Houghtonii* might be a form of the latter, since it was not recognized in our handbooks. The Mich-

igan plant was quite remote from the place where those described by Torrey were obtained, "Lake of the Isles, Northwest Territory," but it has since been reported from the same locality by C. F. Wheeler, as well as from other parts of Michigan. Another of these plants is *Scirpus Smithii* A. Gray, quite closely resembling small forms of *S. debilis* Pursh. Both grow in the muddy borders of sloughs in the sand region, the former as yet seen only at Whiting, Ind. Growing with these, but of wider range, is *Juncus articulatus* L., which may be overlooked on account of its resemblance to *J. Richardsonii* Schult., a very common species here. *J. scirpoides* Lam. may be included with them, in general appearance like some forms of *J. Torreyi* Coville. It is not assigned to the west by Britton and Brown, but I have known it here since 1876 and have since identified it as collected at an earlier date at Kankakee, Ill.

Ledges of rock not being common in our area, plants which require or may seek such a habitat are not expected in much variety. Conditions of this kind exist to some extent along the Desplaines river from Lamont to Joliet, where the Niagara Limestone has been scarped out by glacial action, and low cliffs bordering the flood plain are formed with a talus of rocks at their base. The excavation of the Drainage Canal through this valley, requiring much rock cutting, may in time increase these conditions, for crevices above the waterline will be likely to furnish a foothold for such plants, as the rock faces of unused quarries now do. The most interesting plant of this kind is the little fern, *Pellaea atropurpurea*, which clings in abundance to the face of such a cliff at Lamont. *Silene antirrhina divaricata* Robinson grows with it, its slender sprawling habit making it look quite different from the upright and stiffer form common in dry ground especially by roadsides. I found it the second time the past season growing under somewhat different conditions on bluffs of clay which border a small stream near Thornton, south of this city, but of the same weak, sprawling character, its branches widely spreading. This adds two more stations in Illinois to the one already reported, Rockford. It was also found last season near Peoria. *Pentstemon pubescens* Solander is another denizen of the cliffs as well as of the thin soil spread over the rocks which form the glaciated floor of

the river valley. The cliff also furnishes me the only station for a pretty liverwort, *Grimaldia barbifrons* Bisch., its forking thallus forming little patches on the thin soil of crevices. *Polygonum exsertum* Small may be mentioned in this connection, like *Pentstemon pubescens* frequenting the rocky soil of the valley floor both here and at Lockport.

In the field of introduced plants novelties may continually be expected. It is well to note their arrival as nearly as possible, for the migration of plants becomes important in giving some idea of their habits and rate of spreading. As an example the Yellow Cress (*Nasturtium sylvestre*) may be cited. In 1890 it was found near Western Springs, west of Chicago. It had not been reported from our region before and seemed quite local, growing along the wet banks of Salt Creek and by roadsides and in neighboring meadows. Now it is exceedingly abundant along the Desplaines from Riverside to Lamont or beyond. Salt Creek enters the Desplaines near Riverside, and another stream, Flag Creek, heads near Western Springs, but a short distance from Salt Creek, and enters the Desplaines above Lamont. Either route makes an easy path for the spreading of such a plant, but its habits show that it is also provided with other means of migrating. It is a hardy plant and adapts itself to quite a range of conditions: it will grow with its stems half buried in mud and water, and seems equally at home by the roadside where the wagon wheels may bruise it. On railway embankments it spreads beside the rails and even roots in the ballast. Under these dryer conditions it is more branching and bushy, or it may be procumbent, leaning on the ground for support. The railways are in fact responsible for most of our introduced plants as well as their dispersion when once established. Some of these plants are weeds which could well be spared, others are harmless or may be desirable acquisitions.

Coming from the east may be mentioned *Bromus tectorum* L., small and softly hairy, which appears along the railroads east of the city in Indiana. It was first detected in 1897. At the same time *Centaurea Jacea* L. was obtained. *Reseda alba* L. was collected last year in the streets of Morgan Park south of the city. *Artemisia annua* L. was obtained the first time last season from roadsides at Lamont.

But most of our introduced plants came to us from the west or southwest. In 1897 *Agropyron glaucum* R. & S. was found well established in the dry sand at Clarke, Ind. Whether it would prove as troublesome as the real Couch-grass, *A. repens*, of which it is considered a variety by some, remains to be seen should it persist and spread. It was spreading thickly in soil where such grasses as *Stipa spartea*, *Calamagrostis longifolia*, *Eragrostis pectinacea*, *E. Purshii* and *Panicum virgatum* usually grow. Its subterranean stems did not seem as abundant or formidable as those of *A. repens*, but in richer cultivated fields might be different. As the Blue-joint or Blue-stem of the western stockman, highly praised when it is said of it that "no richer hay can be made from anything known," it might have value as a grass for sand dunes. *Helianthus petiolaris* Nutt., of the dry plains of the west, is becoming frequent by railroads both east and west of the city. It is quite ornamental along their roadbeds, blooming when but eight or ten inches high and rarely exceeding a couple of feet. *Allionia linearis* also comes from west of the Mississippi and was taken last summer from street sides at Morgan Park not far from the Rock Island railroad. In a ditch by the same railroad at South Englewood in the city is a patch of *Bidens involucrata* Britton, its large yellow flowers rather handsome. It comes into the western part of Illinois where it may be native, though its range is westward. It was not given in Patterson's catalogue in 1876 and plainly seems to be adventive here. *Coreopsis tinctoria* Nutt was likewise found in street-side lawns and parkways at Morgan Park, perhaps an escape from gardens, though it may have come by the same route as the *Allionia*, being indigenous to the same region. *Plantago aristata* Michx., a low plant with long, stout and prominent spikes, which are rather abundant, appears in the stiff blue clay taken out of the Drainage Canal and on railway embankments near by. It was doubtless discovered more than a century ago by Michaux "in *pratensibus Illinoensium*," in the autumn of 1795, when he travelled in the southern part of the state, though he makes no mention of the discovery in his journal. Dr. Mead reported it from the vicinity of Quincy, farther north than Michaux came. It is interesting to find that it has migrated to the neighborhood of this city, flourishing under somewhat different con-

ditions from those in prairies and meadows. *Aristida oligantha* Michx. was collected in the same place, a grass with about the same range in this state as the *Plantago aristata*. *Sporobolus neglectus* Nash appears like an introduced grass. I met with it first in 1895 by the Wabash railroad in Will county and again the past season at Lake Zurich, Lake county, where it grows by roadsides with *Panicum proliferum* and *Sporobolus vaginaeflorus*, a frequent grass in dry grounds and waste places where it generally grows in dense patches. Both of them have a different habit when growing by roadsides or in places where they are not crowded, forming stools with the much stouter stems semi-prostrate or ascending. *Panicum proliferum* has a similar habit, becoming a good sized weed in dry grounds, though smaller than in its native swamps or wet lands. The three seem well adapted to endure the wear and trampling to which such plants as grow by highways are more or less subjected.